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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/749,397

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Takeshi Yamamoto

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT

PAPER NUMBER

2871

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

02/26/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/26/2007.

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Office Action Summary	Application No. 10/749,397	Applicant(s) YAMAMOTO, TAKESHI	
	Examiner W. Patty Chen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jan. 3, 2007 has been entered.

Response to Amendment

Applicant's Amendment filed Nov. 30, 2006 has been entered. Claims 1-4, 6-10 and 12 remain pending in the current application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 6-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (US 2004/0114087) in view of Imabayashi et al. (US 6678030) further in view of Wen et al. (US 6208401).

With respect to claim 1 (Amended): Cho et al. disclose in Figure 12 a liquid crystal display apparatus having a display region formed by plural pixels each including a liquid crystal layer (element 3) interposed between a first substrate (element 200) and a second substrate (element 100), comprising:

a first gap region (region corresponding to element 230R) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

a second gap region (region corresponding to element 230B) with a second gap smaller than the first gap;

a first columnar spacer (element 323) formed in the first gap region on the first substrate; and

a second columnar spacer (element 321) formed in the second gap region on the first substrate, and

wherein the first substrate includes a light shield layer (element 220) formed in a picture-frame shape along a peripheral edge of the display region (Paragraphs 0096-0097; wherein the black matrix is formed on the entire substrate, including in the display region, but having openings corresponding to each pixel regions).

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Cho et al. fail to disclose that wherein a contact area of the first columnar spacer is greater than a contact area of the second columnar spacer and that the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material.

However, Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the contact areas of the columnar spacers with respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a contact area greater than that of the columnar spacer located in a smaller gap area and Wen et al. teach in Column 3 lines 7-9 that the spacers and the light shielding layer can be formed of the same material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Cho et al., wherein columnar spacers are formed with different contact areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the contact areas between the columnar spacers in relation to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55) and to form the columnar spacers and the light shielding layer of the same material as taught by Wen et al., since Wen et al. teach that by forming the spacer the same material as the light shielding layer helps to avoid light dispersion (Column 3, lines 11-13).

With respect to claim 7 (Amended): Cho et al. disclose in Figure 12 a liquid crystal display apparatus having a display region formed by plural pixels each including a liquid crystal layer (element 3) interposed between a first substrate (element 200) and a second substrate (element 100), comprising:

a first gap region (region corresponding to element 230R) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

a second gap region (region corresponding to element 230B) with a second gap smaller than the first gap;

a first columnar spacer (element 323) formed in the first gap region on the first substrate; and

a second columnar spacer (element 321) formed in the second gap region on the first substrate, and

wherein the first substrate includes a light shield layer (element 220) formed in a picture-frame shape along a peripheral edge of the display region (Paragraphs 0096-0097; wherein the black matrix is formed on the entire substrate, including in the display region, but having openings corresponding to each pixel regions).

Cho et al. fail to disclose that wherein a dimension of the first columnar spacer is greater than a dimension of the second columnar spacer, wherein the dimensions of the first and second columnar spacers are defined as cross-sectional areas of the first and second columnar spacers in a horizontal plane parallel to the substrate and that the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material.

However, Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the cross-sectional areas of the columnar spacers with respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a cross-sectional area greater than that of the columnar spacer located in a smaller gap area and Wen et al. teach in

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Column 3 lines 7-9 that the spacers and the light shielding layer can be formed of the same material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Cho et al., wherein columnar spacers are formed with different cross-sectional areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the cross-sectional areas between the columnar spacers in relation to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55) and to form the columnar spacers and the light shielding layer of the same material as taught by Wen et al., since Wen et al. teach that by forming the spacer the same material as the light shielding layer helps to avoid light dispersion (Column 3, lines 11-13).

As to claims 2 and 8: Cho et al. further disclose in Figure 12 that the first gap region (region corresponding to element 230R) includes a first color filter (element 230R) that mainly passes first color light, the second gap region (region corresponding to element 230B) includes a second color filter layer (element 230B) that mainly passes second color light, and the first color light has a wavelength greater than a wavelength of the second color light (Red color light has a wavelength greater than blue color light).

As to claims 3 and 9: Cho et al. further disclose in Figure 12 that the first substrate (element 200) includes, in the first gap region (region corresponding to element 230R), a first color filter layer (element 230R) that mainly passes first color light, and includes, in the second gap region (region corresponding to element 230B), a second color filter layer (element 230B) that mainly passes second color light.

As to claims 6 and 12: Cho et al. further disclose in Paragraph 0072 that the first substrate includes a counter electrode common for all pixels.

Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al. (US 6842207) in view of Imabayashi et al. (US 6678030) further in view of Wen et al. (US 6208401).

With respect to claim 1 (Amended): Nishida et al. disclose in Figure 12b a liquid crystal display apparatus having a display region formed by plural pixels each including a liquid crystal layer (element 4) interposed between a first substrate (element 10) and a second substrate (element 10), comprising:

- a first gap region (region corresponding to element 6) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

- a second gap region (region corresponding to element 8) with a second gap smaller than the first gap;

- a first columnar spacer (element 26) formed in the first gap region on the first substrate;

and

- a second columnar spacer (element 26) formed in the second gap region on the first substrate, and

wherein the first substrate includes a light shield layer (element 9) formed in a picture-frame shape along a peripheral edge of the display region (Column 16, lines 18-20; wherein the light shield layer is formed in areas other than the display areas, wherein the display areas are areas corresponding to the pixel regions).

Nishida et al. further disclose that the columnar spacer are formed to have different heights (Column 17, lines 1-12, wherein the spacers can be formed any where within the pixel region and thus the thickness of each of the spacers in each pixel region wherein the color filter layer thicknesses are different are adjusted accordingly, since the spacers have different heights, therefore their volumes are thus different), but fail to disclose that wherein a contact area of the first columnar spacer is greater than a contact area of the second columnar spacer and that the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material.

However, Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the contact areas of the columnar spacers with respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a contact area greater than that of the columnar spacer located in a smaller gap area and Wen et al. teach in Column 3 lines 7-9 that the spacers and the light shielding layer can be formed of the same material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Nishida et al., wherein columnar spacers are formed with different contact areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the contact areas between the columnar spacers in relations to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55) and to form the columnar spacers and the light shielding layer of the same material as taught by Wen et al., since Wen et al. teach that by forming the

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spacer the same material as the light shielding layer helps to avoid light dispersion (Column 3, lines 11-13).

With respect to claim 7 (Amended): Nishida et al. disclose in Figure 12b a liquid crystal display apparatus having a display region formed by plural pixels each including a liquid crystal layer (element 4) interposed between a first substrate (element 10) and a second substrate (element 10), comprising:

- a first gap region (region corresponding to element 6) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

- a second gap region (region corresponding to element 8) with a second gap smaller than the first gap;

- a first columnar spacer (element 26) formed in the first gap region on the first substrate;

and

- a second columnar spacer (element 26) formed in the second gap region on the first substrate, and

wherein the first substrate includes a light shield layer (element 9) formed in a picture-frame shape along a peripheral edge of the display region (Column 16, lines 18-20; wherein the light shield layer is formed in areas other than the display areas, wherein the display areas are areas corresponding to the pixel regions).

Nishida et al. further disclose that the columnar spacer are formed to have different heights (Column 17, lines 1-12, wherein the spacers can be formed any where within the pixel region and thus the thickness of each of the spacers in each pixel region wherein the color filter layer thicknesses are different are adjusted accordingly, since the spacers have different heights,

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therefore their volumes are thus different), but fail to disclose that wherein a dimension of the first columnar spacer is greater than a dimension of the second columnar spacer, wherein the dimensions of the first and second columnar spacers are defined as cross-sectional areas of the first and second columnar spacers in a horizontal plane parallel to the substrate and that the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material.

However, Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the cross-sectional areas of the columnar spacers with respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a cross-sectional area greater than that of the columnar spacer located in a smaller gap area and Wen et al. teach in Column 3 lines 7-9 that the spacers and the light shielding layer can be formed of the same material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by Nishida et al., wherein columnar spacers are formed with different cross-sectional areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the cross-sectional areas between the columnar spacers in relation to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55) and to form the columnar spacers and the light shielding layer of the same material as taught by Wen et al., since Wen et al. teach that by forming the spacer the same material as the light shielding layer helps to avoid light dispersion (Column 3, lines 11-13).

As to claims 2 and 8: Nishida et al. further disclose in Figure 12b that the first gap region (region corresponding to element 6) includes a first color filter (element 6) that mainly passes first color light, the second gap region (region corresponding to element 8) includes a second color filter layer (element 8) that mainly passes second color light, and the first color light has a wavelength greater than a wavelength of the second color light (Red color light has a wavelength greater than blue color light).

As to claims 3 and 9: Nishida et al. further disclose in Figure 12b that the first substrate (element 10) includes, in the first gap region (region corresponding to element 6), a first color filter layer (element 6) that mainly passes first color light, and includes, in the second gap region (region corresponding to element 8), a second color filter layer (element 8) that mainly passes second color light.

Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al. (US 6842207), Imabayashi et al. (US 6678030) and Wen et al. (US 6208401) in view of Ochiai et al. (US 6768531).

Nishida et al., Imabayashi et al. and Wen et al. disclose all of the limitations set forth in the previous claims, but fail to disclose that the first substrate is of an active matrix substrate.

However, Ochiai et al. disclose in Figure 10 a liquid crystal display wherein the columnar spacer (element SUP) is formed on the color filter layers with different thicknesses (element FIL) on the first substrate and the first substrate further includes scan lines (Figure 1, element GL) disposed in a row direction, signal lines (element DL) disposed in a column direction, switching elements (Figure 2, element TFT) disposed near intersections of the scan lines and the signal

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lines, and pixel electrodes (element PX) connected to the switching elements and disposed in a matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display having variable cell gaps formed by different thickness color filter layers having columnar spacers deposited thereon as taught by Nishida et al., Imabayashi et al. and Wen et al. wherein the columnar spacer is formed on the color filter layers with different thicknesses on an active matrix substrate as taught by Ochiai et al., Ochiai et al. teach that by forming the color filter layer along with the columnar spacer on the active matrix substrate helps to reduce the influence of the displacement of alignment of the opposing substrate, thus results in a high definition display device (Column 1, lines 34-41).

Claims 1, 6, 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over YI et al. (US 2003/0104291) in view of Nishida et al. (US 6842207) further in view of Imabayashi et al. (US 6678030).

With respect to claims 1 (Amended) and 6: YI et al. disclose in Figure 5E a liquid crystal display apparatus comprising a first substrate (element 100) including a counter electrode (element 110), a display region formed by plural pixels each including a liquid crystal layer interposed between a first substrate and a second substrate comprising of first and second gap regions (regions between element 118 corresponding to elements 108a-108c) and first and second columnar spacers (element 118) formed in the gap regions and wherein the first substrate includes a light shield layer (element 116) formed in a picture-frame shape along a peripheral edge of the display region (as shown in Figure 1, element 6; wherein the black matrix is formed

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on the entire substrate, including the display region, but with openings corresponding to each of the pixel regions), and the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material (Paragraph 0039).

YI et al. fail to disclose that the second gap region has a second gap smaller than the first gap and that the first columnar spacer has a contact area greater than a contact area of the second columnar spacer.

However, Nishida et al. disclose in Figure 12b and Column 7 lines 1-12 a liquid crystal display apparatus comprising:

- a first gap region (region corresponding to element 6) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

- a second gap region (region corresponding to element 8) with a second gap smaller than the first gap;

- a first columnar spacer (element 26) formed in the first gap region on the first substrate;

and

- a second columnar spacer (element 26) formed in the second gap region on the first substrate,

wherein a dimension and volume of the first columnar spacer is greater than a dimension of the second columnar spacer (Column 17, lines 1-12, wherein the spacers can be formed anywhere within the pixel region and thus the thickness of each of the spacers in each pixel region wherein the color filter layer thicknesses are different are adjusted accordingly, since the spacers have different heights, therefore their volumes are thus different) and further Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the contact areas of the columnar spacers with

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respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a contact area greater than that of the columnar spacer located in a smaller gap area.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by YI et al., wherein the first gap and that the first columnar spacer has a dimension and volume greater than a dimension and volume of the second columnar spacer as taught by Nishida et al., since Nishida et al. teach that a very good display which does not exhibit any coloring in whichever direction it is viewed can be obtained by varying the gap size of the liquid crystal layer and that the columnar spacers with different dimension and volume are provided as to maintain the different cell gaps (Abstract) and to form columnar spacers with different contact areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the contact areas between the columnar spacers in relations to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55).

With respect to claims 7 (Amended) and 12: YI et al. disclose in Figure 5E a liquid crystal display apparatus comprising a first substrate (element 100) including a counter electrode (element 110), a display region formed by plural pixels each including a liquid crystal layer interposed between a first substrate and a second substrate comprising of first and second gap regions (regions between element 118 corresponding to elements 108a-108c) and first and second columnar spacers (element 118) formed in the gap regions and wherein the first substrate includes a light shield layer (element 116) formed in a picture-frame shape along a peripheral edge of a display region (as shown in Figure 1, element 6; wherein the black matrix is formed on

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the entire substrate, including the display region, but with openings corresponding to each of the pixel regions), and the first columnar spacer, the second columnar spacer and the light shield layer are formed of the same material (Paragraph 0039).

YI et al. fail to disclose that the second gap region has a second gap smaller than the first gap and that the first columnar spacer has a dimension greater than a dimension of the second columnar spacer, wherein the dimensions of the first and second columnar spacers are defined as cross-sectional areas of the first and second columnar spacers in a horizontal plane parallel to the substrate.

However, Nishida et al. disclose in Figure 12b and Column 17 lines 1-12 a liquid crystal display apparatus comprising:

- a first gap region (region corresponding to element 6) with a first gap for interposition of the liquid crystal layer between the first substrate and the second substrate;

- a second gap region (region corresponding to element 8) with a second gap smaller than the first gap;

- a first columnar spacer (element 26) formed in the first gap region on the first substrate;

and

- a second columnar spacer (element 26) formed in the second gap region on the first substrate,

wherein a dimension and volume of the first columnar spacer is greater than a dimension of the second columnar spacer (Column 17, lines 1-12, wherein the spacers can be formed anywhere within the pixel region and thus the thickness of each of the spacers in each pixel region wherein the color filter layer thicknesses are different are adjusted accordingly, since the spacers

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have different heights, therefore their volumes are thus different) and further Imabayashi et al. disclose in Column 7 lines 60-65 that formation of the cross-sectional areas of the columnar spacers with respect to the different gap areas of the liquid crystal display device such that the columnar spacer located in a larger gap area has a cross-sectional area greater than that of the columnar spacer located in a smaller gap area.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display apparatus as taught by YI et al., wherein the first gap and that the first columnar spacer has a dimension and volume greater than a dimension and volume of the second columnar spacer as taught by Nishida et al., since Nishida et al. teach that a very good display which does not exhibit any coloring in whichever direction it is viewed can be obtained by varying the gap size of the liquid crystal layer and that the columnar spacers with different dimension and volume are provided as to maintain the different cell gaps (Abstract) and to form columnar spacers with different cross-sectional areas as taught by Imabayashi et al., since Imabayashi et al. teach that the difference in the cross-sectional areas between the columnar spacers in relations to their heights helps to control the elasticities of the respective spacers themselves (Column 7, lines 48-55).

Response to Arguments

Applicant's arguments filed Nov. 30, 2006 have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on

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obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner

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WPC

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ANDREW SCHECHTER
PRIMARY EXAMINER